

# Survey on Content, Target Audience and Format Highway Safety Manual

## Process and Results

September 30, 2002

User Liaison and Support Task Group

## User Liaison and Support Task Group

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## Process

- Development of the Survey
- Development of Email List (300 + ITE:3000)
- Survey Adaptation and Posting on the WEB Testing/Acceptance – Open (Feb-June 2002)
- Development of a Introduction Letter and Background Information re: HSM
- Development of Personal and Group Emails
- Sending invitations (Feb 2002)
- Response Collection (320 – 288 single ones), Processing and Documentation

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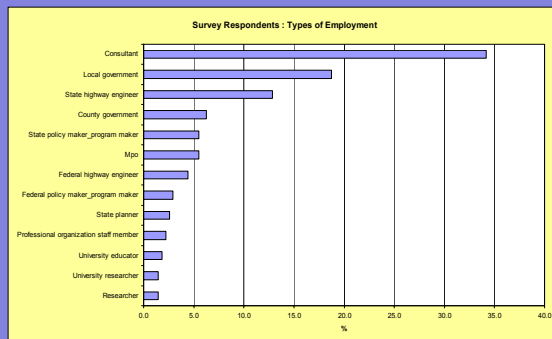
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## 1. Employment Type

- ☐ Federal Policy Maker/Program Manager
- ☐ Federal Highway Engineer
- ☐ Federal Planners
- ☐ State Policy Maker/Program Manager
- ☐ State Highway Engineer
- ☐ State Planners
- ☐ County Government
- ☐ Local Government
- ☐ MPO
- ☐ Military
- ☐ University Educator
- ☐ University Researcher
- ☐ Researcher
- ☐ Consultant
- ☐ Professional Organization staff member

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288 Persons

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## 2. Organization Membership/Participation

- ☐ TRB
- ☐ AASHTO
- ☐ ITE
- ☐ ARTBA
- ☐ ATSSA
- ☐ ITS
- ☐ IIHS
- ☐ NTSB
- ☐ CVVSA
- ☐ Roadway Safety Foundation
- ☐ AAA Foundation for Traffic Safety
- ☐ NAGHSR
- ☐ CRASH
- ☐ Other

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## Organization Membership/Participation

- Over 200 – ITE
- Over 70 – TRB
- Over 20 – AASHTO
- Over 140 – multiple organizations
- Over 50 – other organizations (Assoc. of Pedestrian and Bicycle Professionals, Transportation Ass. of Canada, League of American Bicyclists, etc)

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## 3. Highway Safety Manual Structure

- Parts I to V – Topics' Headings were listed for information
- What else? Any changes?

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## Highway Safety Manual Structure What Else?

### Part I: Introduction and Fundamentals

- Give a 10-year overview of safety statistics
- Introduce non-motorized crashes in the fundamentals of road safety
- Add
  - Speed Management and Safety Effects
  - Weather and Safety
  - Design Consistency and Safety

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## Highway Safety Manual Structure What Else?

### Part II: Knowledge

- New Chapter: Safety Conscious Planning; Long-Term Planning and Safety; Safety in System and Project Planning stages
- New Chapter: Safety and Context Sensitivity Design and Public Participation
- Add Safety Effects of:
  - Traffic Calming and Traffic Diversion
  - Railway Crossings – at different situations
  - Surface Type and Condition
  - Driveway spacing and throat length
  - Signing/stripping
  - Intersection Spacing

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## Highway Safety Manual Structure What Else?

### Part II: Knowledge

- Include Residential / Local Streets in Highway Segments (Highway to be renamed Road??)
- Separate: "Safety Effects of Pedestrian Facilities" and "Safety Effects of Bicyclist Facilities"
- Consider explicitly Pedestrian and Bicyclist, Moped and Motorcyclist in ALL parts including interchanges, etc – disagreement: some ask for individual sections
- ITS and Safety
- School Zone and Safety
- Pedestrian and Transit Interactions and Safety

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## Highway Safety Manual Structure What Else?

### Part II: Knowledge

- Explicit safety effects of roundabouts, 4-leg and 3-leg intersections (and their relationships)
- Explicit differentiation between recreational and commuting roads; urban and rural
- New measures with required enforcement and education to support engineering innovations
- Safety Issues re: Maintenance, Work Zones and Construction
- Safety of non-recurring situations

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## Highway Safety Manual Structure What Else?

### Part II: Knowledge

- Safety Effects of Light-Rail
- Roadside Safety as part of highway design element
- Add explicit consideration of “cross street” in the safety effects of interchanges

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## Highway Safety Manual Structure What Else?

### Part III: Predictive Models

- Explicit consideration of Traffic Mix
- Add:
  - Freeways – urban and rural
  - Highways – 3- and 4-lane highways separately; divided/undivided; 5-lane and conversions
  - Urban local streets: with/out parallel parking ; 2-lane; residential streets; with exclusive/shared bike lane
  - Interchanges – urban and rural; different types
  - Intersections – 3- and 4-leg; urban, suburban, rural

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## Highway Safety Manual Structure What Else?

### Part IV: Safety Management of Roadway Systems

- How often to screen? Provide guidelines on screening procedures and required databases
- Countermeasures combining 3 E's
- Countermeasures that are feasible and have proven positive safety impacts
- Special provision for pedestrian and bicyclist safety management

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## Highway Safety Manual Structure What Else?

### Part V: Safety Evaluation

- Add:
  - Data gathering methods
  - Statistical analysis techniques
  - Strengths/weaknesses of analytical methods

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## Highway Safety Manual Structure What Else?

### Other comments:

- Crash or collision – not accident
- Consider all road users and not only drivers
- Promote a non-bias and misleading terminology; improvements at a location may have negative impacts elsewhere and/or affects different road users differently
  - use modification or change
- Link to software
- Consider crash prevention approach
- New Chapter: Road Safety Audit

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## 4. Prioritize the Scope for the HSM

Operations	High <input type="checkbox"/>	Medium <input type="checkbox"/>	Low <input type="checkbox"/>
Policy issues	High <input type="checkbox"/>	Medium <input type="checkbox"/>	Low <input type="checkbox"/>
Preliminary design	High <input type="checkbox"/>	Medium <input type="checkbox"/>	Low <input type="checkbox"/>
Feasibility/planning/conceptual design	High <input type="checkbox"/>	Medium <input type="checkbox"/>	Low <input type="checkbox"/>
Final design	High <input type="checkbox"/>	Medium <input type="checkbox"/>	Low <input type="checkbox"/>
System level issues	High <input type="checkbox"/>	Medium <input type="checkbox"/>	Low <input type="checkbox"/>
Construction	High <input type="checkbox"/>	Medium <input type="checkbox"/>	Low <input type="checkbox"/>
Maintenance	High <input type="checkbox"/>	Medium <input type="checkbox"/>	Low <input type="checkbox"/>

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## Scope for HSM

The four highest rated categories:

- Operations
- Preliminary Design
- Final Design
- Feasibility/Planning/Conceptual Design

Operations	64.3	30.3	5.4
Preliminary Design	61.5	34.2	4.3
Final Design	58.6	34.2	7.2
Feasibility/Planning/Conceptual Des	56.8	36.7	6.5
Policy Issues	45.7	40.6	13.7
Maintenance	37.2	44.9	17.9
System Level Issues	29.7	54.0	16.3
Construction	28.4	48.4	23.3

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## 5. Prioritize the General Topic Areas to be Covered in the HSM

Highway safety principles	High <input type="checkbox"/>	Medium <input type="checkbox"/>	Low <input type="checkbox"/>
Safety analyses	High <input type="checkbox"/>	Medium <input type="checkbox"/>	Low <input type="checkbox"/>
Data collection	High <input type="checkbox"/>	Medium <input type="checkbox"/>	Low <input type="checkbox"/>
Measures of safety	High <input type="checkbox"/>	Medium <input type="checkbox"/>	Low <input type="checkbox"/>
Methods to predict safety impacts	High <input type="checkbox"/>	Medium <input type="checkbox"/>	Low <input type="checkbox"/>
Statistical methods	High <input type="checkbox"/>	Medium <input type="checkbox"/>	Low <input type="checkbox"/>
Decision-making tools	High <input type="checkbox"/>	Medium <input type="checkbox"/>	Low <input type="checkbox"/>
Implementation issues	High <input type="checkbox"/>	Medium <input type="checkbox"/>	Low <input type="checkbox"/>
Monitoring on-going assessment	High <input type="checkbox"/>	Medium <input type="checkbox"/>	Low <input type="checkbox"/>

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## General Topic Areas

The highest rated topic areas:

- Safety Analyses
- Safety Principles
- Measures of Safety
- Methods to Predict Safety Impact
- Decision-Making Tools

Safety Analyses	77.2	21.0	1.8
Highway Safety Principles	68.9	28.3	2.8
Measures of Safety	63.7	34.2	2.2
Methods to Predict Safety Impacts	61.6	33.8	4.6
Decision-making Tools	60.9	33.1	6.0
Implementation Issues	45.4	48.6	6.1
Monitoring On-Going Assessment	40.4	51.8	7.9
Data Collection	39.1	52.7	8.2
Statistical Methods	24.2	54.1	21.7

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## What Additional Topic Areas Should be Covered in the HSM?

Additional topic areas :

- Non-motorized transport e.g. pedestrians and cyclists (how to incorporate pedestrian and bicycle facility design into all phases of transportation safety planning)
- The holistic approach to highway safety management (how to establish partnerships for safety).

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## What Additional Topic Areas Should be Covered in the HSM?

Additional topic areas:

- Liability issues
- Road Safety Audits
- Work Zones and Temporary Traffic Control
- Asset management including safety
- Multi-modal safety approach
- Explicit ADA in the design of facilities
- Animal Crash prevention
- Illumination and vehicle lights

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## 6. Prioritize Types of Facilities

### Highway Segments

Two-lane (rural, suburban, urban)	High <input type="checkbox"/>	Medium <input type="checkbox"/>	Low <input type="checkbox"/>
Multi-lane (divided/undivided, rural, suburban, urban)	High <input type="checkbox"/>	Medium <input type="checkbox"/>	Low <input type="checkbox"/>
Freeways (rural, urban)	High <input type="checkbox"/>	Medium <input type="checkbox"/>	Low <input type="checkbox"/>

### Intersections and Interchanges

Driveways (residential, commercial)	High <input type="checkbox"/>	Medium <input type="checkbox"/>	Low <input type="checkbox"/>
Yield and stop controlled	High <input type="checkbox"/>	Medium <input type="checkbox"/>	Low <input type="checkbox"/>
Interchanges	High <input type="checkbox"/>	Medium <input type="checkbox"/>	Low <input type="checkbox"/>
Signalized	High <input type="checkbox"/>	Medium <input type="checkbox"/>	Low <input type="checkbox"/>

### Special Facilities

Railroad-highway grade crossings	High <input type="checkbox"/>	Medium <input type="checkbox"/>	Low <input type="checkbox"/>
Bridges	High <input type="checkbox"/>	Medium <input type="checkbox"/>	Low <input type="checkbox"/>
Tunnels	High <input type="checkbox"/>	Medium <input type="checkbox"/>	Low <input type="checkbox"/>
HOV and bus lanes/facilities	High <input type="checkbox"/>	Medium <input type="checkbox"/>	Low <input type="checkbox"/>

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## Facility Types

### The highest rated facilities:

- Signalized Intersections
- Multilane roads
- Two-lane
- Yield and STOP-controlled Intersections
- Interchanges

Signalized	75.2	22.3	2.5
Multi Lane	70.1	29.1	0.7
Two Lane	66.7	29.7	3.6
Yield and Stop Controlled	50.9	44.0	5.1
Interchanges	46.0	38.8	15.2
Railroad-Highway Grade Crossing	43.9	41.8	14.3
Driveways	37.6	41.6	20.8
Freeways	33.8	44.6	21.6
HOV and Bus Lanes	24.1	43.9	32.0
Bridges	18.6	66.3	15.1
Tunnels	12.6	54.5	32.9

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## What *Additional* Topic Areas Should be Covered in the HSM?

- Bicycle and pedestrian facilities – bicycle lanes, sidewalks, crosswalks, school crossings and sidewalks, shared-use lanes, etc.
- Roundabouts
- Interfaces between facilities (Ped – Transit; Ped – Bicyclist)
- Transit facilities – bays, LRT, BRT
- Transitions
- Passing and Climbing lanes
- Traffic “Calmed” corridors / areas
- Rest Areas/ Stops in rural highways

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## 7. Prioritize the Preferred Medium for Distribution and Updating of the HSM

CD-ROM

World Wide Web version

Printed and bound, “hard” copy

High ☐ Medium ☐ Low ☐

High ☐ Medium ☐ Low ☐

High ☐ Medium ☐ Low ☐

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## Preferred Medium for Distribution and Updating of the HSM

### The highest rated media:

- World Wide Web
- Both; CD ROM and Hard-copy format.

World Wide Web	59.1	31.0	10.0	100.0
CD-ROM	45.4	44.0	10.6	100.0
Printed and hard copy	44.1	38.1	17.8	100.0

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## 8. Prioritize the Preferred Format for the HSM

Traditional, hard copy format with individual chapters, sections, tables, and figures

High ☐ Medium ☐ Low ☐

Electronic copy version hyperlinked with audio-visual aids including searchable database of key words, tables, figures, and video clips

High ☐ Medium ☐ Low ☐

Computer-based interactive “smart” assistant that can call existing (or planned) design or operational software (e.g., IHSDM, CHSIM, HCS)

High ☐ Medium ☐ Low ☐

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## Preferred Format for the HSM

### The highest rated format:

- Electronic version with hyperlinks
- Traditional hard-copy

Electronic copy version with Hyperlinks	59.7	35.0	5.3
Traditional hard copy format	50.2	35.7	14.1
Computer-based interactive “smart” assistant	33.5	42.0	24.6

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## What *Additional* Formats?

### Additional formats:

- We need all formats to reach all professionals
- A field-edition to take to site visits
- Updates via-Web for quick and continuous updates
- The latest technology in 5 years
- As MUTCD.

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## 9. Future Participation?

- Positive: 241 respondents
- Other contacts for future follow-up: about 80 names

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## 10. What Would be your Immediate Application of HSM?

### Popular answers:

- Safety Prediction – variety of road types and projects
- Selection of measures based on safety effects
- Budget allocation and funding for safety projects
- Preparation of a road safety audit plan for future design/construction projects
- All types of road projects (life cycle)
- Assessment of the safety performance of existing roads
- A daily reference – a professional handbook

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## Immediate Application of HSM?

- Selection of most safety-effective facility / interface between facilities
- System-wide and planning programs with explicit safety
- Estimation of the safety effectiveness of ITS
- If there will be simple examples, spreadsheets, and videos of bad / good examples – immediate application
- Integration with training courses, university courses, and Association references' sources
- Depends if there is an interface with a software
- Prepare responses to citizens' complaints and politicians' requests

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## Immediate Application of HSM?

- Yesterday!
- Immediate!
- Tomorrow!
- The day after tomorrow!!
- Within one month....
- In 2 months.....

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## 11. Other Comments?

- Stay focused; clear English
- Timely topic; already overdue
- Require funds
- Ensure all road users are considered
- Five years is too long
- I would like to participate
- Thank you for your effort

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**Questions**

**Thank you**